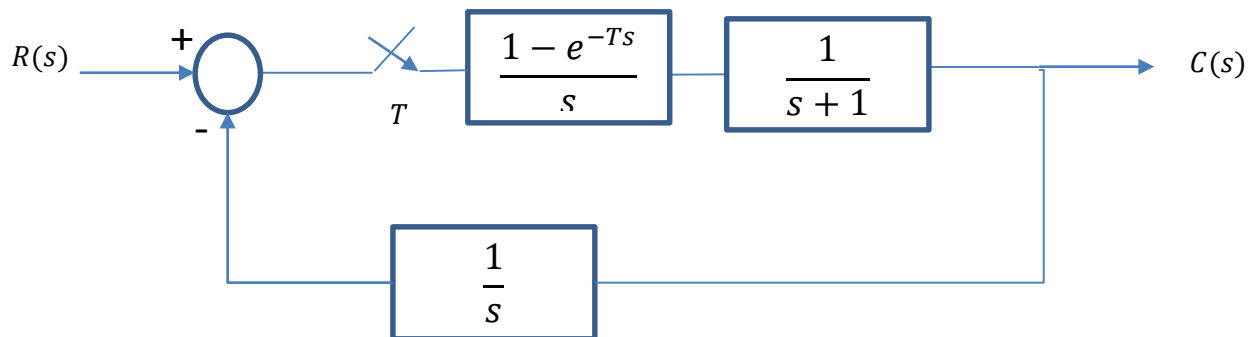


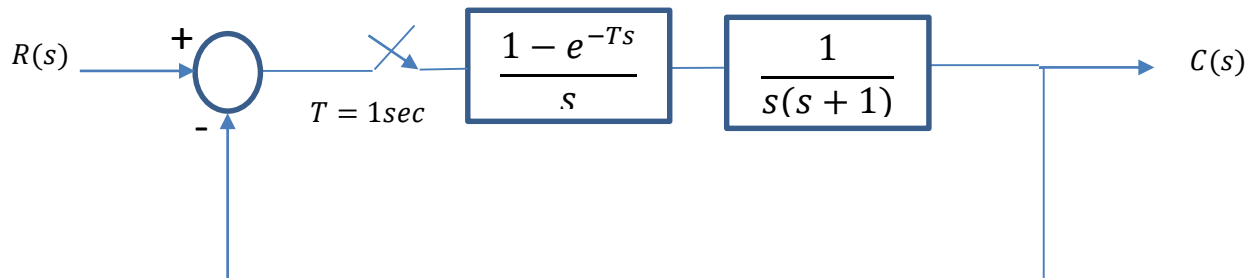
Tanta University	3 rd year, Computers & Control Dept.
Faculty of Engineering	Digital Control

Sheet 3

1. For the sampled-data control system shown in figure below, determine the output $c(k)$ for a unit-step i/p ($T = 1\text{sec}$):



2. For the unity feedback discrete-data system shown in figure below, determine the steady-state error when the system is subjected to:
- A unit step
 - A unit ramp

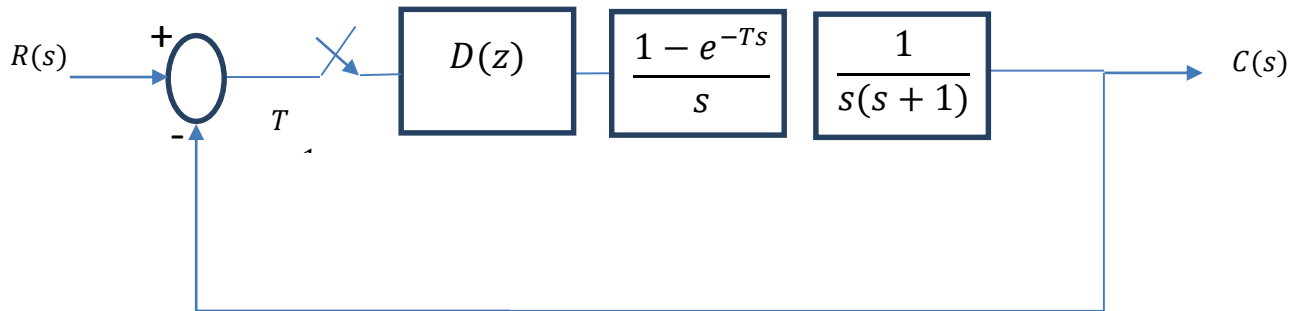


3. The transfer function of a discrete-data system:

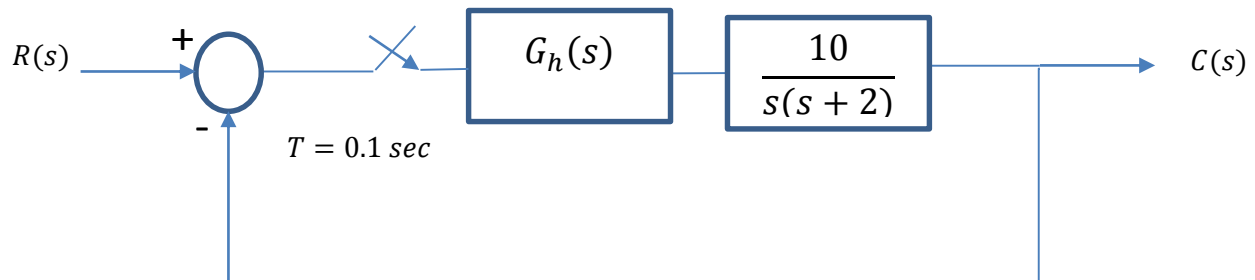
$$\frac{C(z)}{R(z)} = \frac{0.4}{s(s + 1)}$$

- Determine the system impulse response.
- Discuss the system stability.
- Obtain the system unit-step response.

4. For the system shown below with pure gain control: $D(s) = K$
- Find the closed-loop system discrete T.F.
 - Determine K such that the system closed-loop pole is at -1.
 - Find the system response due to a unit step i/p when $K = 1$.



5. Determine the o/p sequence for a unit step i/p.



6. If $D(s) = 1$, find the closed-loop system discrete T.F.

